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REMARKS

Claims 1-5 were originally presented in the subject application. Claims 1-5 were amended and claim 6 added in a Preliminary Amendment filed with the present application. Claim 7 has hereinabove been amended to more particularly point out and distinctly claim the subject invention. No claims have herein been amended or canceled. Therefore, claims 1-7 remain in this case.

The addition of new matter has been scrupulously avoided. In that regard, support for the addition of claim 7 can be found in the specification at, for example, page 25, lines 1-7.

Applicants respectfully request reconsideration and withdrawal of the various grounds of rejection.

Double Patenting

The Office Action rejected claims 1-4 and 6 under the judicially created doctrine of obviousness-type double patenting over claims 1-3 of U.S. Patent No. 6,216,150.

In response, Applicants include herewith a terminal disclaimer over U.S. Patent No. 6,216,150, which is commonly owned by the assignee of this application. Therefore, Applicants submit that the double patenting rejection is overcome.

The Office Action also rejected claim 5 under the judicially created doctrine of obviousness-type double patenting over claims 1-3 of U.S. Patent No. 6,216,150 in view of claims 1-14 of U.S. Patent No. 6,026,426.

Applicants submit the terminal disclaimer over U.S. Patent No. 6,216,150 submitted herewith overcomes this rejection as well.

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35 U.S.C. §103 Rejection

The Office Action rejected claim 1 under 35 U.S.C. §103 as allegedly obvious over Bala et al. (IEEE article, entitled "CCL: A Portable and Tunable Collective Communication Library for Scalable Parallel Computers") in view of Muth et al. (IEEE article, entitled "Atomic Commitment for Integrated Database Systems"). Applicants respectfully, but most strenuously, traverse this rejection.

As an initial matter, Applicants submit that one of ordinary skill in the art would not combine Bala et al. and Muth et al. as alleged in the Office Action. The scheme in Muth et al. is centrally managed by a global transaction manager (see page 297, section 3.1), who initiates the phase of the two-phase commit where each process commits or aborts. A process only aborts if the commit fails. The global transaction manager is also involved in a begin transaction step by which each process joins. In stark contrast, there is no controlling entity in Bala et al.; rather, Bala et al. appears to describe more of a peer-to-peer process. Applicants seriously question why and how one skilled in the art would even combine these disparate references. How would process failures be handled? How would lost messages be handled? With no central manager in Bala et al., how would a protocol be initiated?

When one considers the fields of each of Bala et al. and Muth et al., it becomes even more clear that one skilled in the art would not be motivated to combine them. Bala et al. is concerned with scientific computing, whereas Muth et al. is concerned with commercial databases. The problems, concerns and solutions for these vastly different areas simply do not lend themselves to a combination. Scientific computing does not involve databases; at most, scientific computing accesses a shared file system. The model is typically not even shared memory, but message exchange. Commercial data processing, in contrast, may involve distributed databases.

Therefore, Applicants submit that the combination of Bala et al. with Muth et al. is improper.

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Even if it were ultimately held that Bala et al. and Muth et al. were properly combined, Applicants submit that claim 1 is not taught or suggested thereby. For example, claim 1 recites voting on a proposed protocol among the members of a process group.

While the Office Action admits that Bala et al. fails to teach voting, at the same time it alleges that Bala et al. teaches a *proposed* protocol. Applicants question how Bala et al. can teach proposing something that is not voted on.

Nonetheless, the Office Action cites to Muth et al. against the voting aspect of claim 1. However, Applicants submit that Muth et al. does not teach voting *per se*, as claimed in claim 1. The only actions available in Muth et al. for a given process are commit or abort, and abort is only allowed where commit fails. When attempting to commit, a process writes the changed data to stable storage, and reports success (commit) or failure (abort). Applicants submit this is not a vote, but more accurately a report as to the success or failure of the commit. If any one process cannot commit locally, then the global transaction is rolled back. Voting implies choice; Applicants submit there is no real choice in Muth et al.

Moreover, Applicants submit there is no proposed protocol in either reference or their combination. Bala et al. involves commands, not proposals. Indeed, as noted above, since the Office Action admits Bala et al. does not teach voting, Applicants submit it cannot teach or suggest a proposal, as there is simply no mechanism to do anything with a proposal. Similarly, Muth et al. instructs to commit, and the processes only report abort if the commit fails. The processes are not even made aware of what the global transaction is, so Applicants question how this can be viewed as a proposal, which implies knowledge.

As another example, claim 1 also recites implementing or refraining from implementing the proposed action in response to an outcome of the voting. The Office Action admits that this aspect of claim 1 is not taught by Bala et al., citing instead to Muth et al. However, Applicants submit there is no refraining going on in Muth et al., since all the processes attempt to commit. Reporting a failure (referred to as "abort") is not refraining, nor is rolling back successful local

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commits. Muth et al. more accurately teaches undoing, rather than refraining from taking an action in the first place.

For all the above reasons, Applicants submit that claim 1 cannot be made obvious over Bala et al. in view of Muth et al.

The Office Action also rejected claims 2 and 6 as allegedly obvious over Bala et al. in view of Muth et al. as applied to claim 1, and in further view of Moser et al. (IEEE article, entitled "The Totem System"). Applicants respectfully, but most strenuously, traverse this rejection.

Independent claim 6 includes all of the elements of claim 1. Thus, the remarks made above with respect to claim 1 are equally applicable to claim 6.

Therefore, Applicants submit that claim 6 also cannot be made obvious over Bala et al. in view of Muth et al. as applied to claim 1, and in further view of Moser et al.

Claim 2 recites managing membership of at least one of the process group and a processor group of processors.

Contrary to the allegation in the Office Action, Applicants submit that Bala et al. does not teach or suggest managing membership of a process group. The cited section of Bala et al. teaches that there are two ways to create a process group. The first way is that each process that intends to become a member knows the unique process id (PID) of every other process that intends to join the group, as well as the label or name of the resulting process group to be formed. Each such process passes these parameters (which must be the same for each process) on a call to the subroutine. There is simply no management going on in this first way to create a process group, which must at least be used for the initial process group. The second way to create a process group in Bala et al. is to merge with a subset of an existing process group. Again, there is no management here either.

Moreover, the Office Action admits that Bala et al. does not teach managing that includes a member joining or leaving the process group. Applicants question how Bala et al. can teach managing membership without teaching managing members joining and leaving. Applicants submit there can be no real management without this basic aspect of group management.

The Office Action admits that Bala et al. fails to teach managing a processor group of processors. Instead, the Office Action cites to Moser et al. for this aspect of claim 2. Applicants submit that, upon careful review of Moser et al., it does mention that Totem manages a processor group, and further mentions Totem having a protocol to do the same, however, no actual details are given in Moser et al. as to how it is done.

Therefore, Applicants submit that claim 2 cannot be rendered obvious over Bala et al. in view of Muth et al. as applied to claim 1, and in further view of Moser et al.

The Office Action also rejected claim 3 as allegedly obvious over Bala et al. in view of Muth et al. as applied to claim 1, and in further view of Gray (U.S. Patent No. 5,802,396). Applicants respectfully, but most strenuously, traverse this rejection.

As an initial matter, Applicants submit that one of ordinary skill in the art would not be motivated to combine the references as alleged in the Office Action. Applicants have already questioned the combination of Bala et al. with Muth et al. above with respect to claim 1. Along with scientific computing (Bala et al.) and commercial data processing (Muth et al.), the Office Action now seeks to combine these references with one in the field of artificial intelligence (Gray). Applicants submit these extremely varied environments would matter to one skilled in the art, in terms of what one skilled in the art would reasonably look to.

Therefore, Applicants submit that Bala et al., Muth et al. and Gray are improperly combined.

Even if it were somehow determined that all of these reference are properly combined, Applicants still submit that one or more limitations of claim 3 are not taught or suggested thereby. For example, claim 3 recites controlling a group state value for a process group,

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Against this aspect of claim 3, the Office Action cites to the combination of Bala et al. and Muth et al. The Office Action appears to identify, in the context of the cited art, two group states, commit and abort. However, Applicants submit that neither is a group state. In Muth et al., database updates/writes are only made in the context of a transaction. A group begins a transaction, updates some records, then either commits or aborts (i.e., for any one or more members, the commit fails). The group states are thus "in transaction" and "out of transaction". Transitioning from "in" to "out of" transaction is accomplished when any record updates made in the transaction are either committed or aborted. Commit and abort are not states, but a means to transition from one state (in transaction) to another (out of transaction). The two-phase commit protocol in Muth et al. is run at the end of a transaction to determine whether the work of the transaction is committed or aborted.

Therefore, Applicants submit that claim 3 cannot be rendered obvious over Bala et al. in view of Muth et al. as applied to claim 1, and in further view of Gray.

The Office Action rejects claim 4 as allegedly obvious over Bala et al. in view of Muth et al. as applied to claim 1, and further in view of Moser et al. and Gray.

Claim 4 is a combination of claims 2 and 3. As such, the Office Action points to the arguments therein with respect to claims 2 and 3. Applicants do the same; that is, reference the arguments made above with respect to claims 2 and 3.

Finally, the Office Action rejected claim 5 as allegedly obvious over the art cited with respect to claim 4, and in further view of Foss (U.S. Patent No. 5,335,347). Applicants respectfully, but most strenuously, traverse this rejection.

Applicants submit that Foss does not teach or suggest a process group. The plurality of receiver processes in Foss are simply not related, except that they are all registered to get messages of a common type. Moreover, claim 5 recites that one or more aspects *of the process group* are monitored. Applicants submit that receiving common messages from a single sender is not the same as monitoring one or more aspects of a process group.

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Therefore, Applicants submit that claim 5 cannot be rendered obvious over the art cited in the rejection of claim 4, and in further view of Foss.
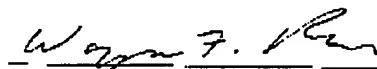
CONCLUSION

Applicants submit that the dependent claims not specifically addressed herein are allowable for the same reasons as the independent claims from which they directly or ultimately depend, as well as for their additional limitations.

Applicants acknowledge the references indirectly cited in the Office Action, but not substantively applied. However, Applicants submit that the pending claims are patentable thereover as well.

For all the above reasons, Applicants maintain that the claims of the subject application define patentable subject matter and earnestly requests allowance of claims 1-7.

If a telephone conference would be of assistance in advancing prosecution of the subject application, Applicants' undersigned attorney invites the Examiner to telephone him at the number provided.

Respectfully submitted,

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